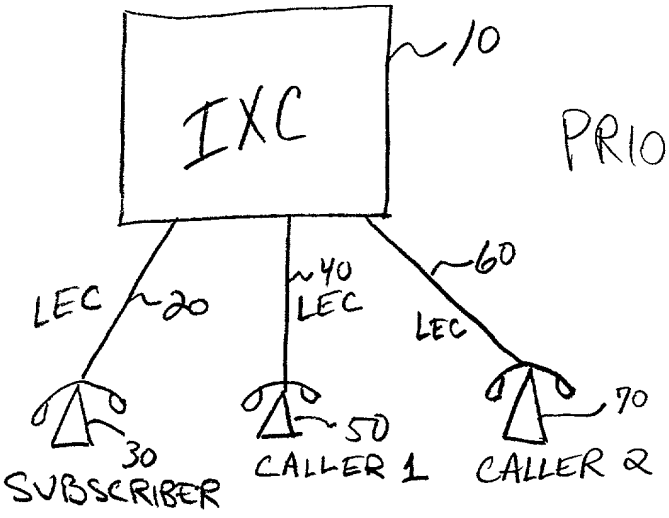
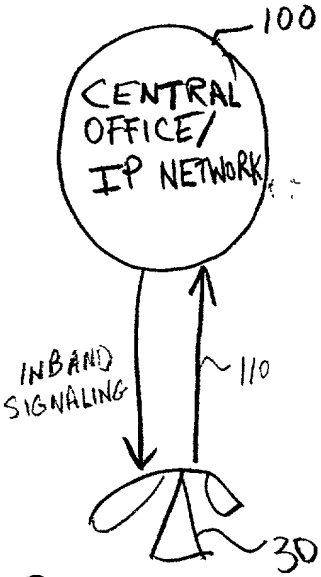


FIG. 1



PRIOR ART

FIG. 2A

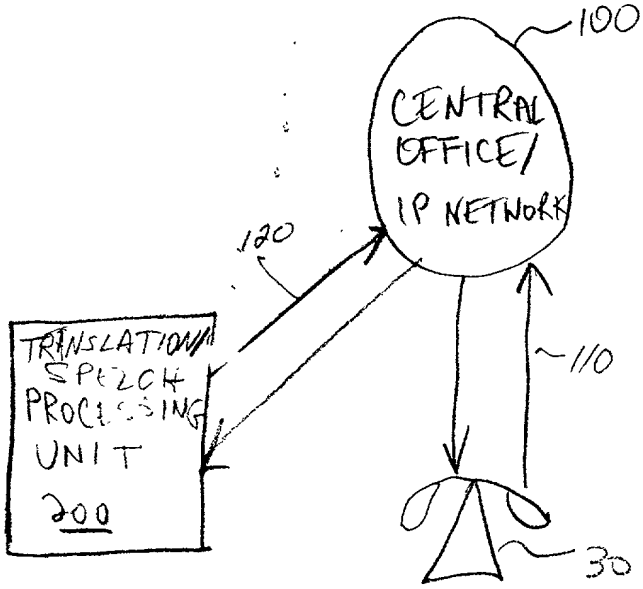


FIG. 2B

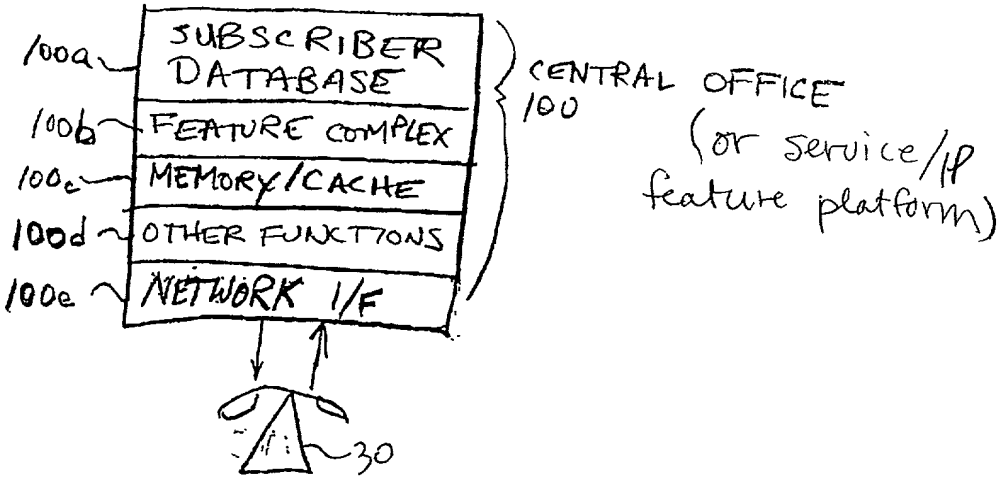

100a
SUBSCRIBER DATABASE
100b
FEATURE COMPLEX
100c
MEMORY/CACHE
100d
OTHER FUNCTIONS
100e
NETWORK I/F
CENTRAL OFFICE 100
(or service/IP feature platform)
30

FIG. 3A

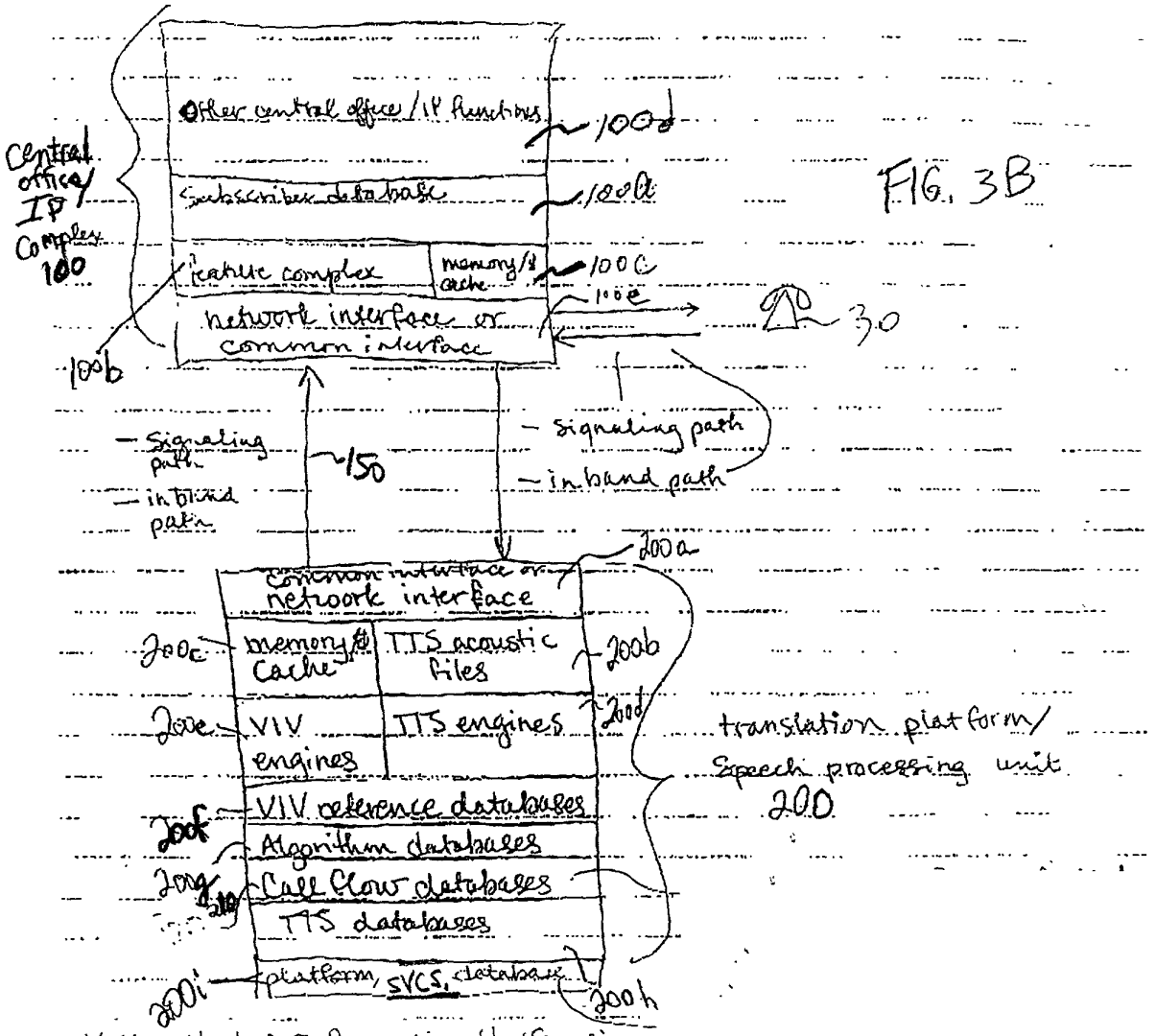


FIG. 3B

VIV = Verbal Information Verification
TTS = Text to Speech

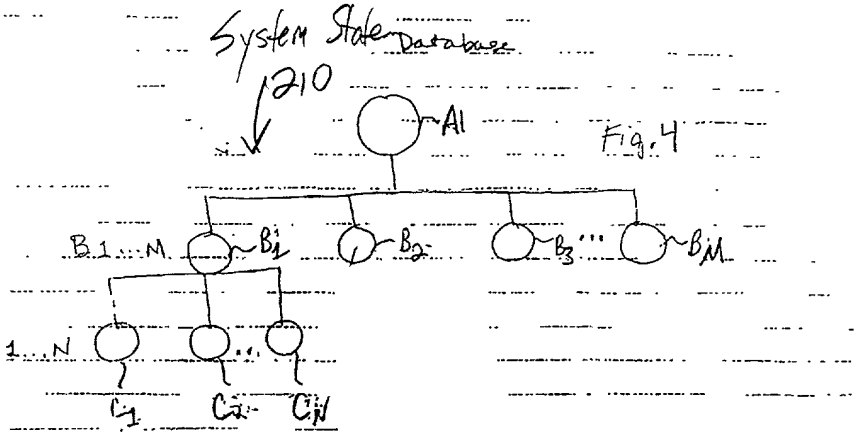


Fig. 4

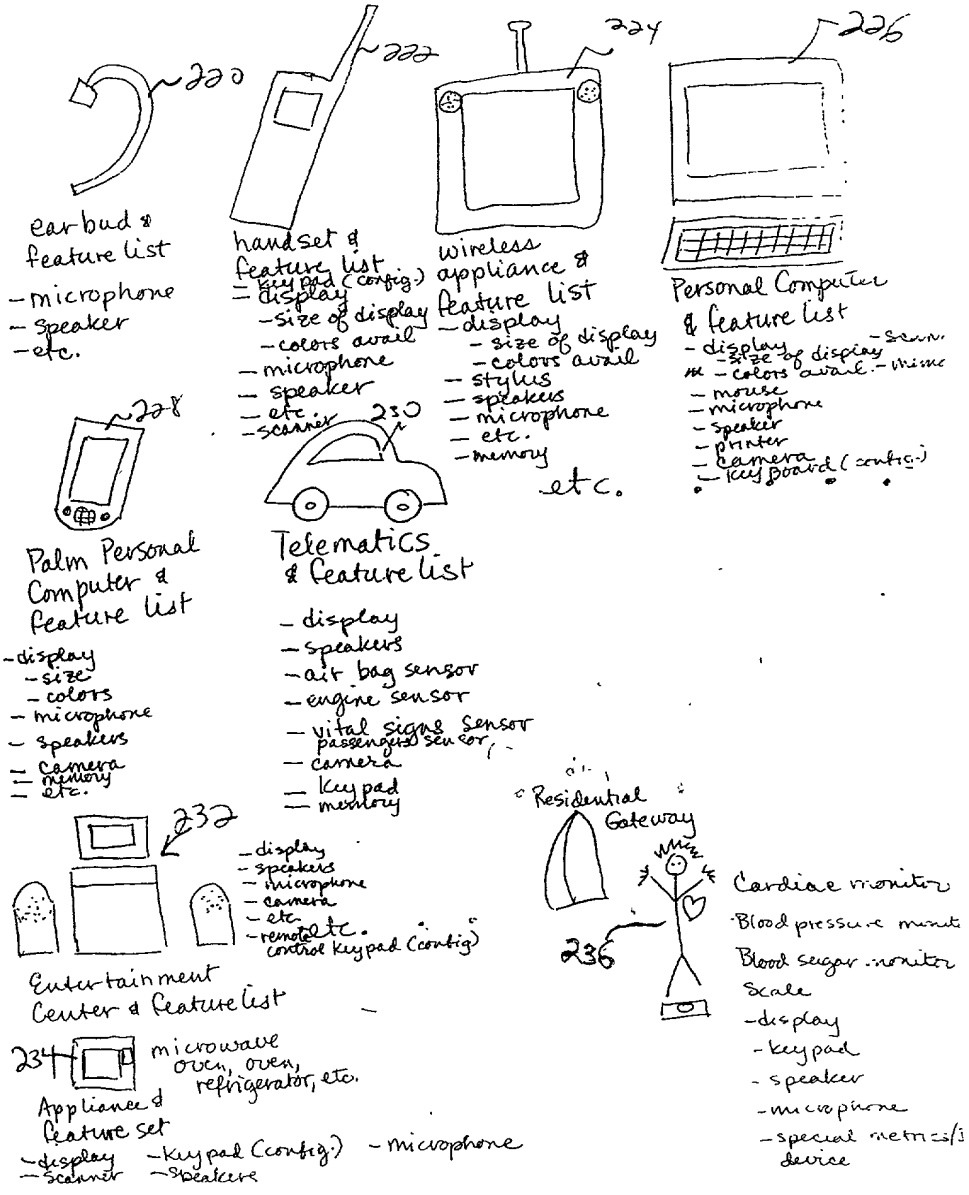

220
ear bud & feature list
- microphone
- speaker
- etc.
222
handset & feature list
- keypad (config.)
- display
- size of display
- colors avail
- microphone
- speaker
- etc.
- scanner
224
wireless appliance & feature list
- display
- size of display
- colors avail
- stylus
- speakers
- microphone
- etc.
- memory
etc.
226
Personal Computer & feature list
- display
- size of display
- colors avail
- scanner
- mouse
- microphone
- speaker
- printer
- camera
- keyboard (config.)
228
Palm Personal Computer & feature list
- display
- size
- colors
- microphone
- speakers
- camera
- memory
- etc.
230
Telematics & feature list
- display
- speakers
- air bag sensor
- engine sensor
- vital signs sensor
passenger's sensor
- camera
- keypad
- memory
232
- display
- speakers
- microphone
- camera
- etc.
- remote control keypad (config.)
etc.
Entertainment Center & feature list
234
microwave oven, oven, refrigerator, etc.
Appliance & feature set
- display
- scanner
- keypad (config.)
- speakers
- microphone
Residential Gateway
236
Cardiac monitor
Blood pressure monit
Blood sugar monitor
Scale
- display
- keypad
- speaker
- microphone
- special metrics/i device

FIG. 5A

Database lookup for target device/s

240

Profiles	Format for translator	speaker	microp.	display	size	color	keypad	size	capacity	etc
earbud 1	Form 1	✓	✓							
earbud n	Form 1	✓	✓	✓	16x6				Type 1	
handset 1	Form 10	✓	✓	⋮	⋮				⋮	
⋮		⋮	⋮	✓	16x2				Type N	
handset n	Form 12	✓	✓	✓	40x60				Type 1	
appliance 1	Form 100	✓	✓	✓					Type 1	
appliance N	Form 110	✓	✓							
computer 1										
⋮										
computer N										

FIG. 5B

FIG, 5C

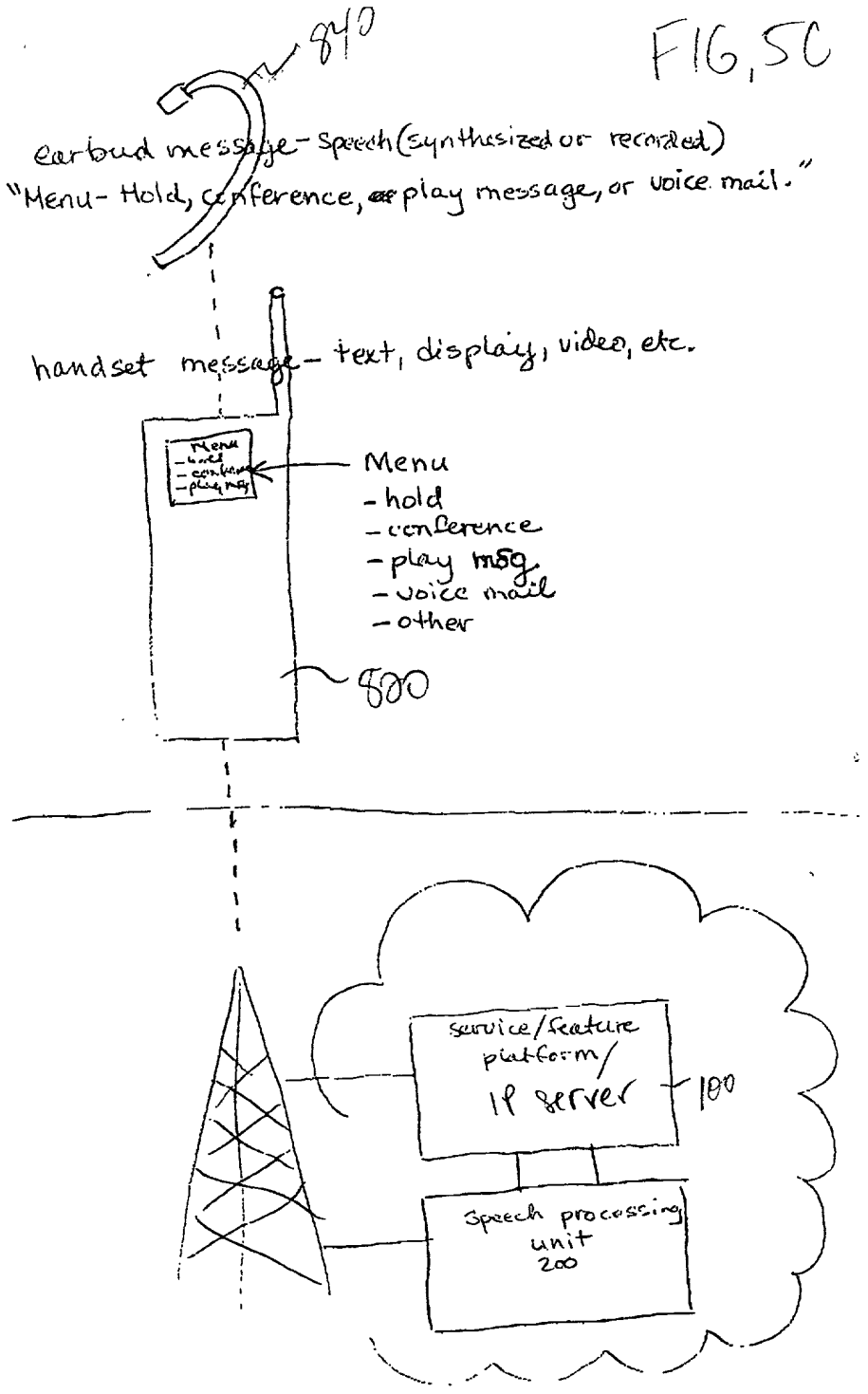

840
earbud message - Speech (synthesized or recorded)
"Menu - Hold, conference, play message, or voice mail."
handset message - text, display, video, etc.
Menu
- hold
- conference
- play msg
- voice mail
- other
800
service/feature platform/ IP server
100
Speech processing unit 200

Fig 6 A

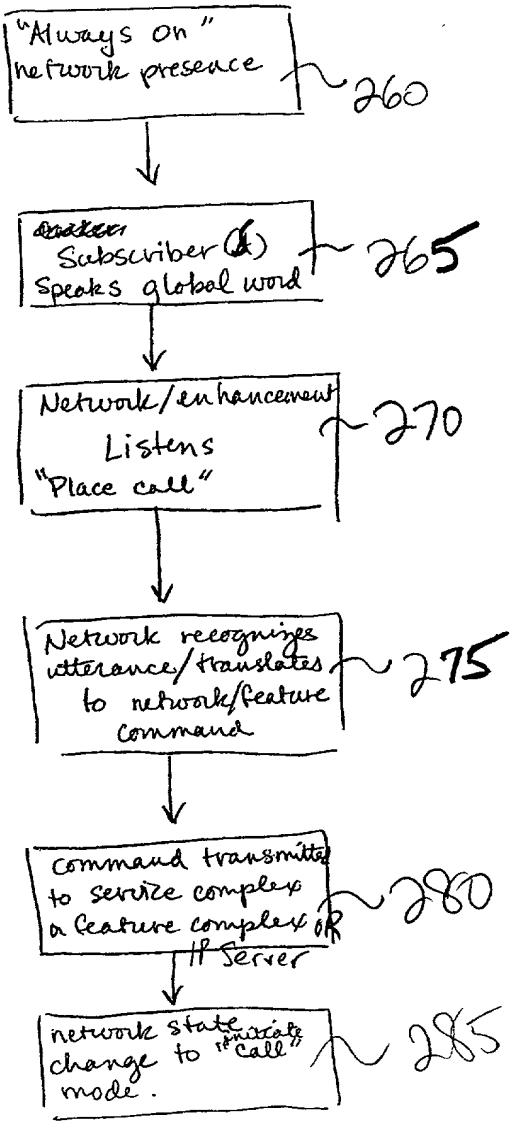

"Always On" network presence
260
Subscriber (A) Speaks global word
265
Network/enhancement Listens "Place call"
270
Network recognizes utterance/translates to network/feature command
275
command transmitted to service complex a feature complex OR IP Server
280
network state change to "initiate call" mode.
285

FIG. 6A

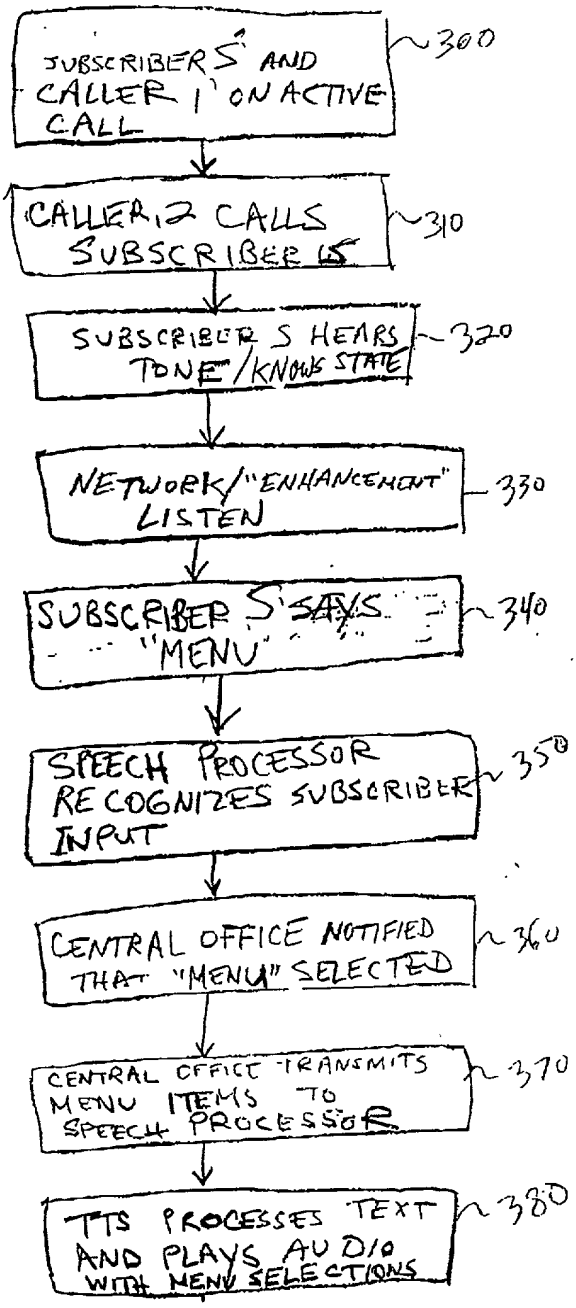

SUBSCRIBER 5 AND CALLER 1 ON ACTIVE CALL
300
CALLER 2 CALLS SUBSCRIBER 5
310
SUBSCRIBER 5 HEARS TONE/KNOWS STATE
320
NETWORK/"ENHANCEMENT" LISTEN
330
SUBSCRIBER 5 SAYS "MENU"
340
SPEECH PROCESSOR RECOGNIZES SUBSCRIBER INPUT
350
CENTRAL OFFICE NOTIFIED THAT "MENU" SELECTED
360
CENTRAL OFFICE TRANSMITS MENU ITEMS TO SPEECH PROCESSOR
370
TTS PROCESSES TEXT AND PLAYS AUDIO WITH MENU SELECTIONS
380

Fig. 6B

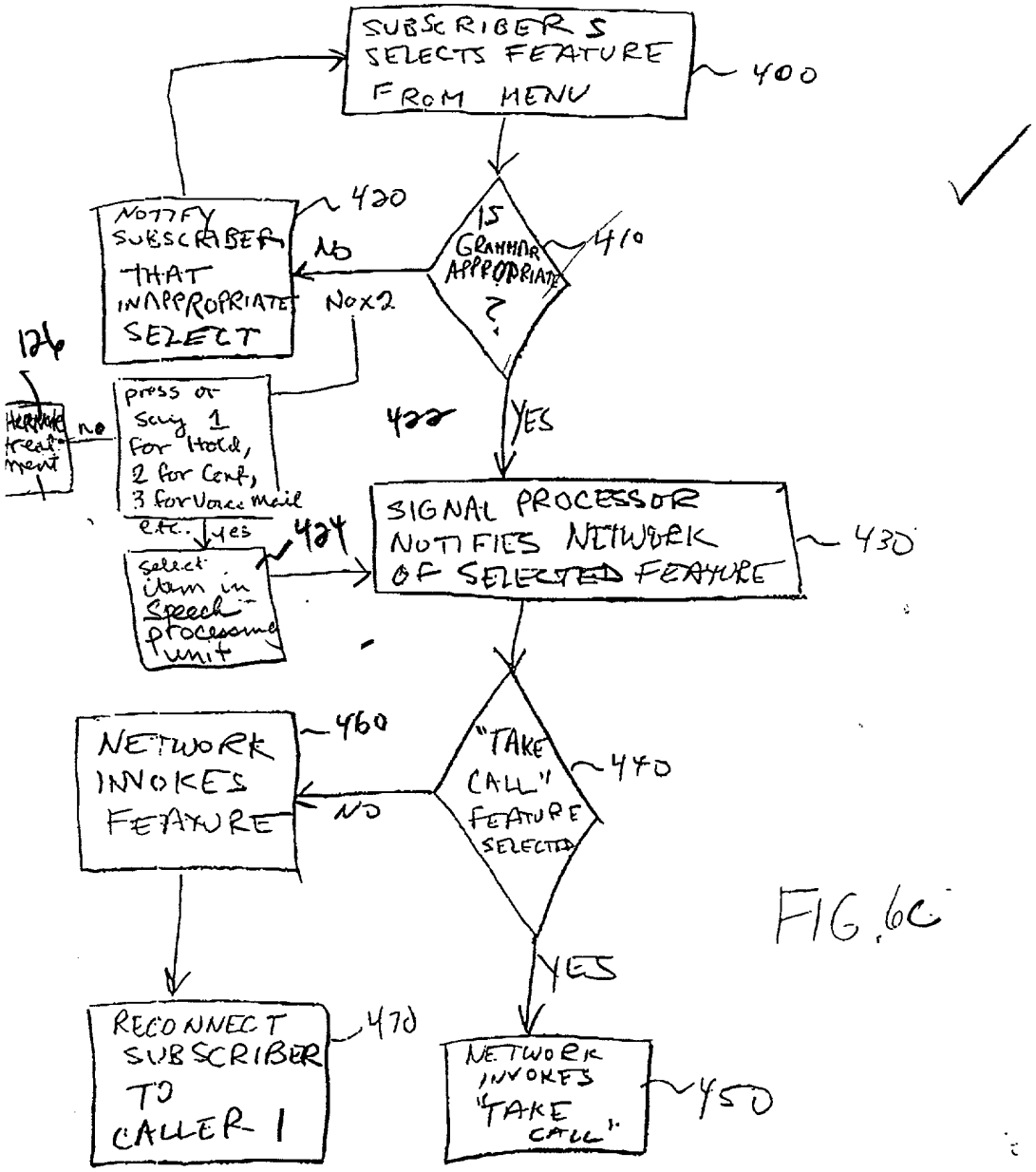
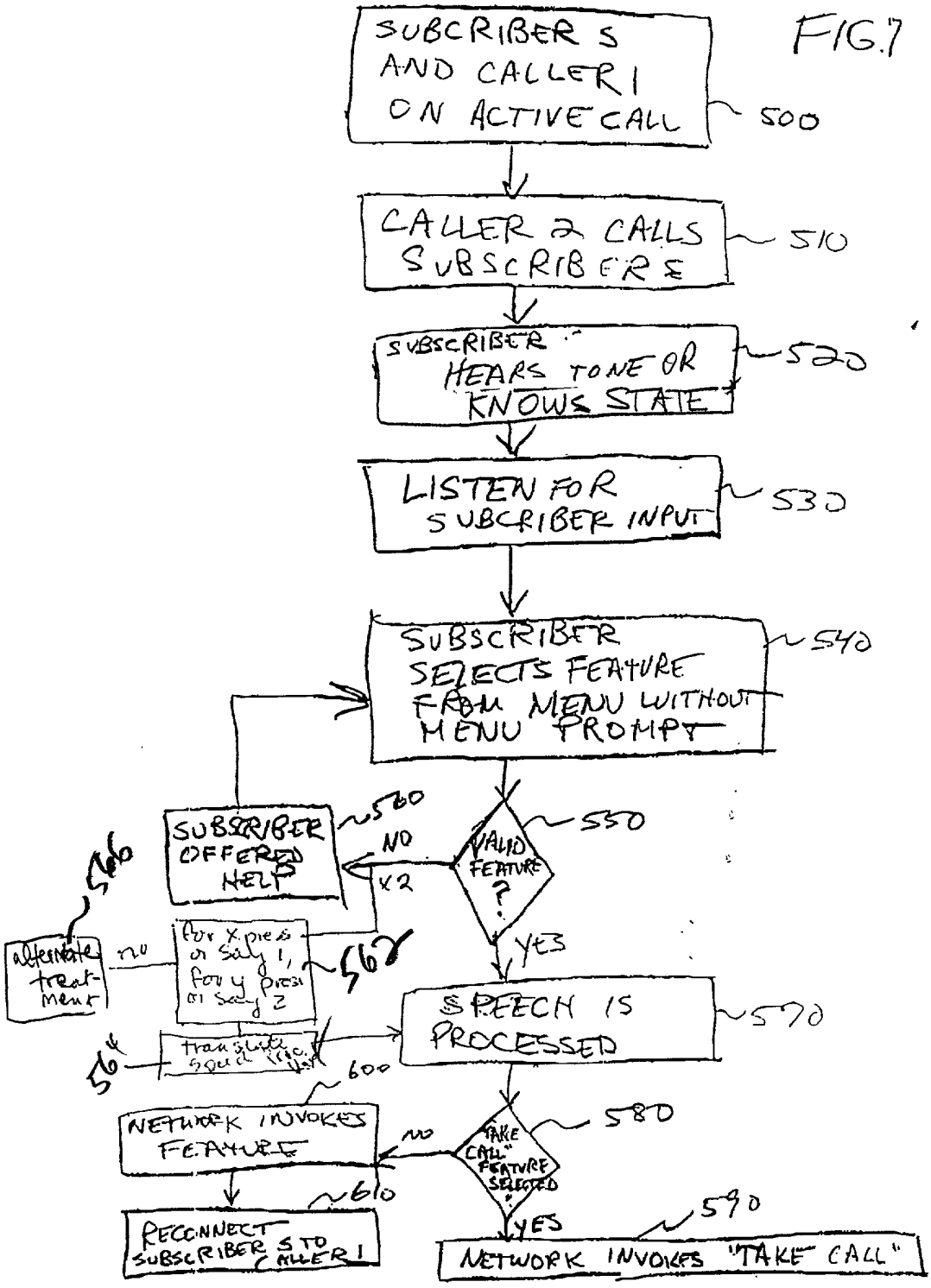

SUBSCRIBER SELECTS FEATURE FROM MENU
400
IS GRAMMAR APPROPRIATE ?
410
NO
NOTIFY SUBSCRIBER THAT INAPPROPRIATE SELECT
420
NO x 2
YES
422
press or say 1 For Hold, 2 for Conf, 3 for Voice Mail etc.
yes
select item in Speech processing unit
424
SIGNAL PROCESSOR NOTIFIES NETWORK OF SELECTED FEATURE
430
"TAKE CALL" FEATURE SELECTED
440
NO
NETWORK INVOKES FEATURE
460
YES
NETWORK INVOKES "TAKE CALL"
450
RECONNECT SUBSCRIBER TO CALLER 1
470

FIG. 6C

FIG.7


SUBSCRIBER S AND CALLER 1 ON ACTIVE CALL
500
CALLER 2 CALLS SUBSCRIBER S
510
SUBSCRIBER HEARS TONE OR KNOWS STATE
520
LISTEN FOR SUBSCRIBER INPUT
530
SUBSCRIBER SELECTS FEATURE FROM MENU WITHOUT MENU PROMPT
540
VALID FEATURE ?
550
NO
YES
SUBSCRIBER OFFERED HELP
560
alternate treatment
no
for X press or say 1, for Y press or say 2
562
SPEECH IS PROCESSED
570
TAKE CALL FEATURE SELECTED ?
580
NO
YES
NETWORK INVOKES FEATURE
600
RECONNECT SUBSCRIBER S TO CALLER 1
610
NETWORK INVOKES "TAKE CALL"
590

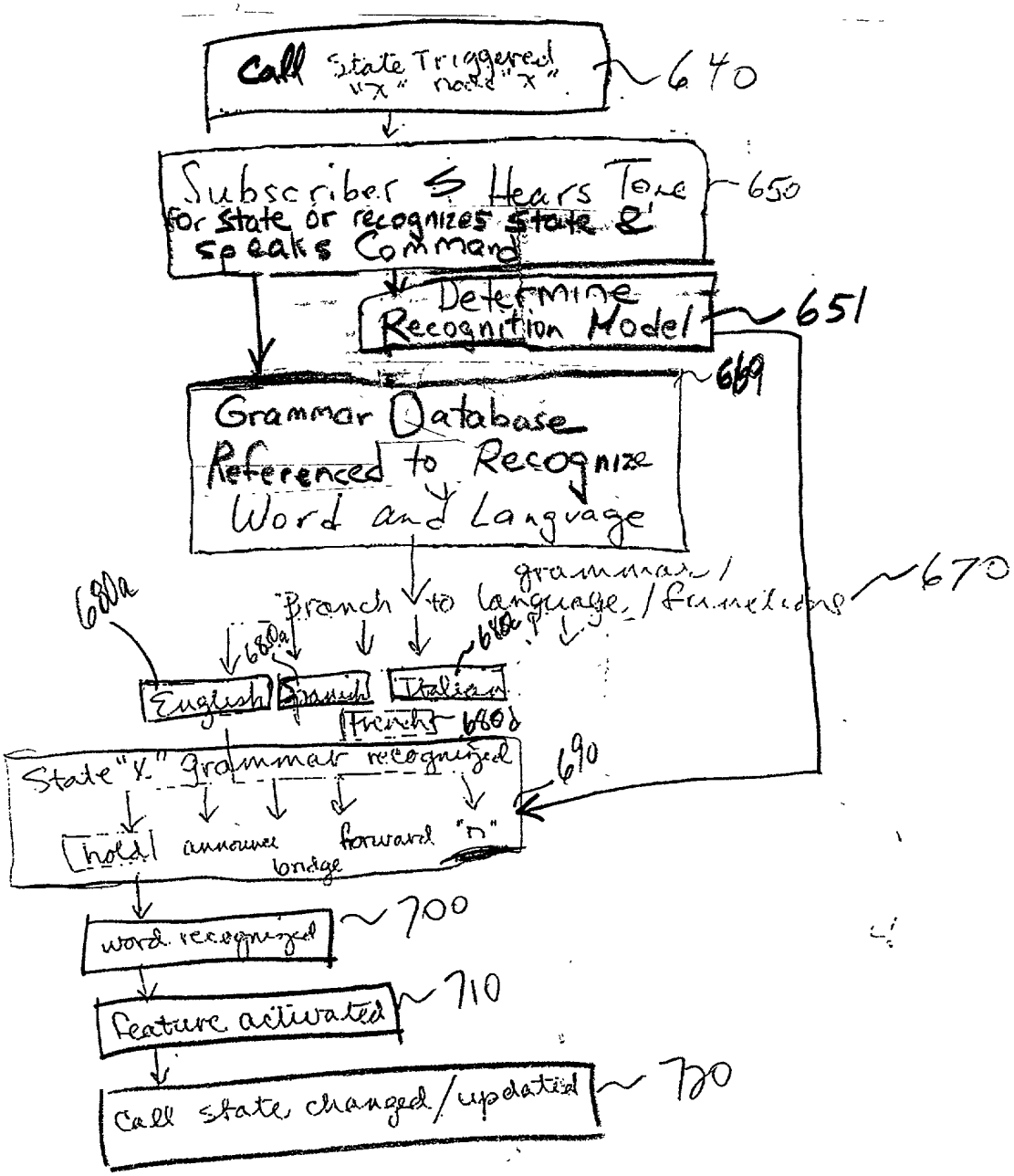
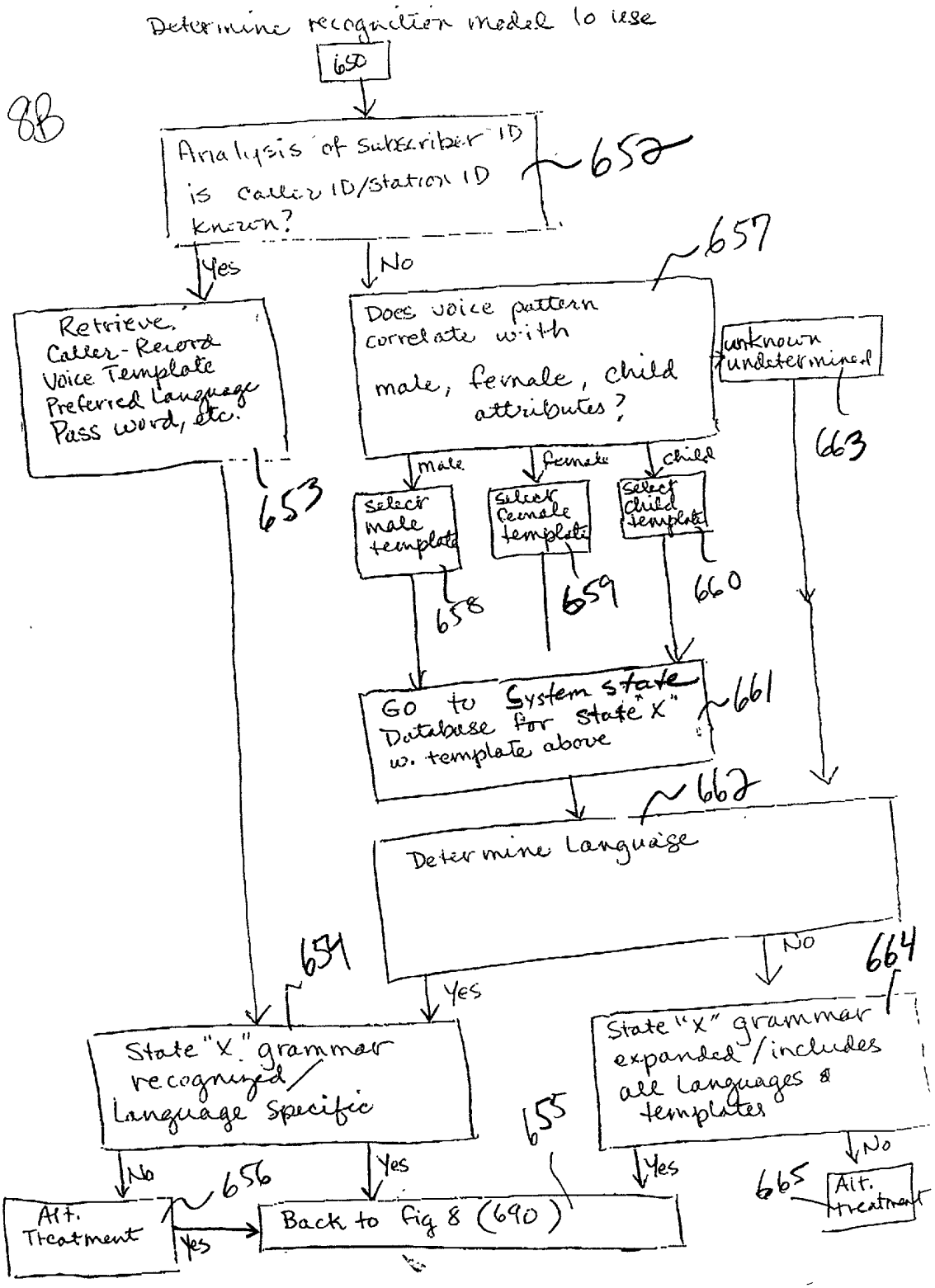

Call State Triggered "X" node "X"
640
Subscriber Hears Tone for State or recognizes State & speaks Command
650
Determine Recognition Model
651
669
Grammar Database Referenced to Recognize Word and Language
Branch to grammar / language / functions
670
680a
680b
680c
680d
English
Spanish
Italian
French
State "X" grammar recognized
690
hold
announce
bridge
forward "n"
word recognized
700
feature activated
710
Call state changed / updated
720

FIG. 8A

FIG. 8B


Determine recognition model to use
650
Analysis of subscriber ID is caller ID/station ID known?
652
Yes
No
Retrieve Caller-Record Voice Template Preferred Language Pass word, etc.
653
657
Does voice pattern correlate with male, female, child attributes?
unknown undetermined
663
male
female
child
Select male template
Select female template
Select child template
658
659
660
GO to System state Database for state "X" w. template above
661
662
Determine Language
654
No
664
Yes
State "X" grammar recognized / Language specific
State "X" grammar expanded / includes all Languages & templates
655
No
Yes
Yes
No
Alt. Treatment
656
Yes
Back to fig 8 (690)
665
Alt. Treatment

Caller-Record Database

666

Caller-ID/ Station-ID	Cust ID	Voice Template	Password/ Key	Pref. Language	Subscription Information
732 555-1111	0231	File 0231	turtle	English	remote access
732 555 2222	0232	File 0232	martian	English	Local/ Regional
732 555 3333	0233	File 0233	orange	English	Remote access
⋮	⋮	⋮	⋮	⋮	⋮

FIG. 8C

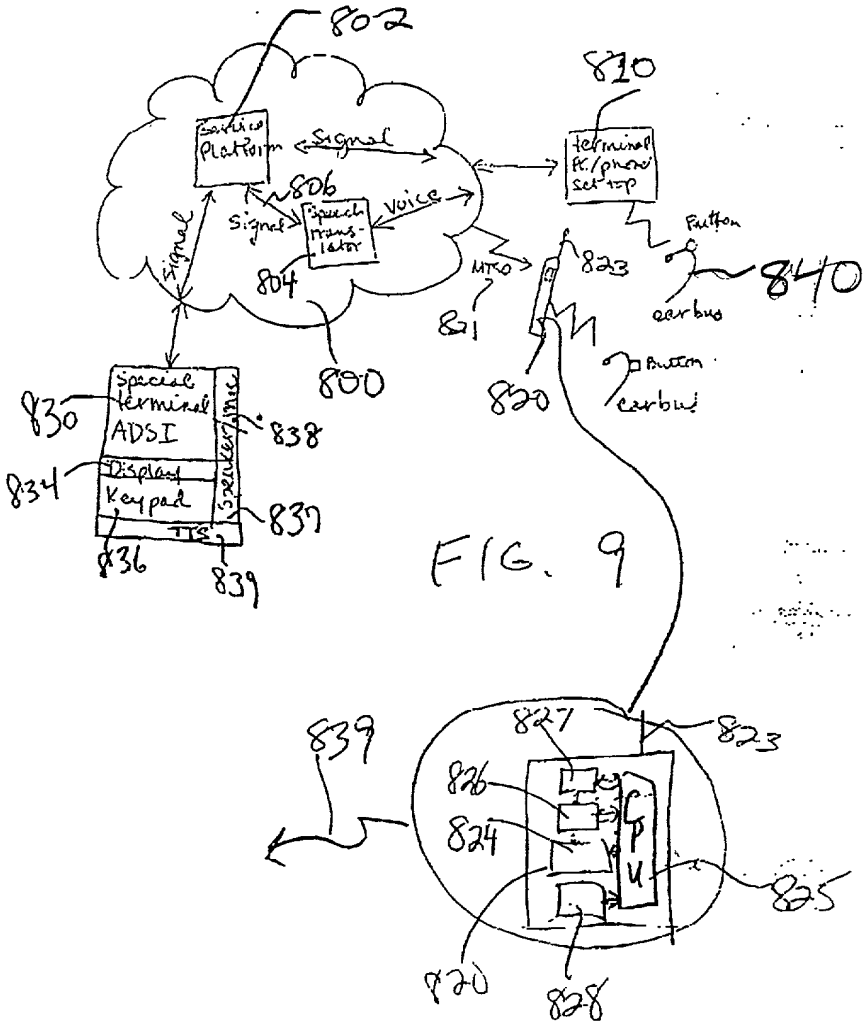

802
Service Platform
Signal
806
Signal
Speech Translator
Voice
804
800
Signal
810
terminal w/ phone set-top
Button
840
earbud
MIC
823
821
820
Button
earbud
special terminal
ADSI
Display
Keypad
TTS
Speaker/mic
830
834
838
837
836
839
839
827
823
826
824
CPU
825
820
828

FIG. 9

FIG. 10A →

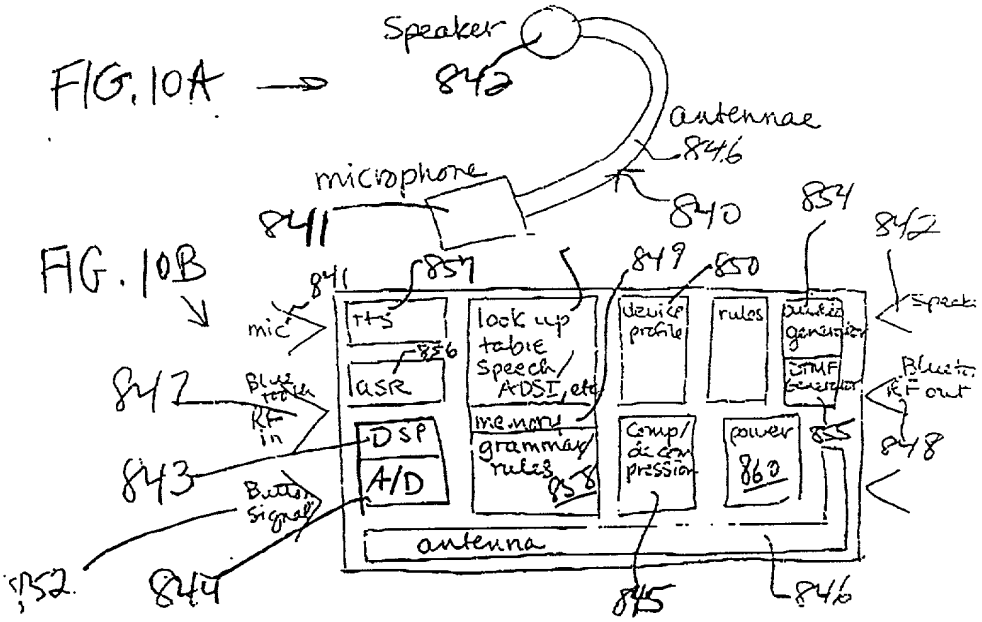
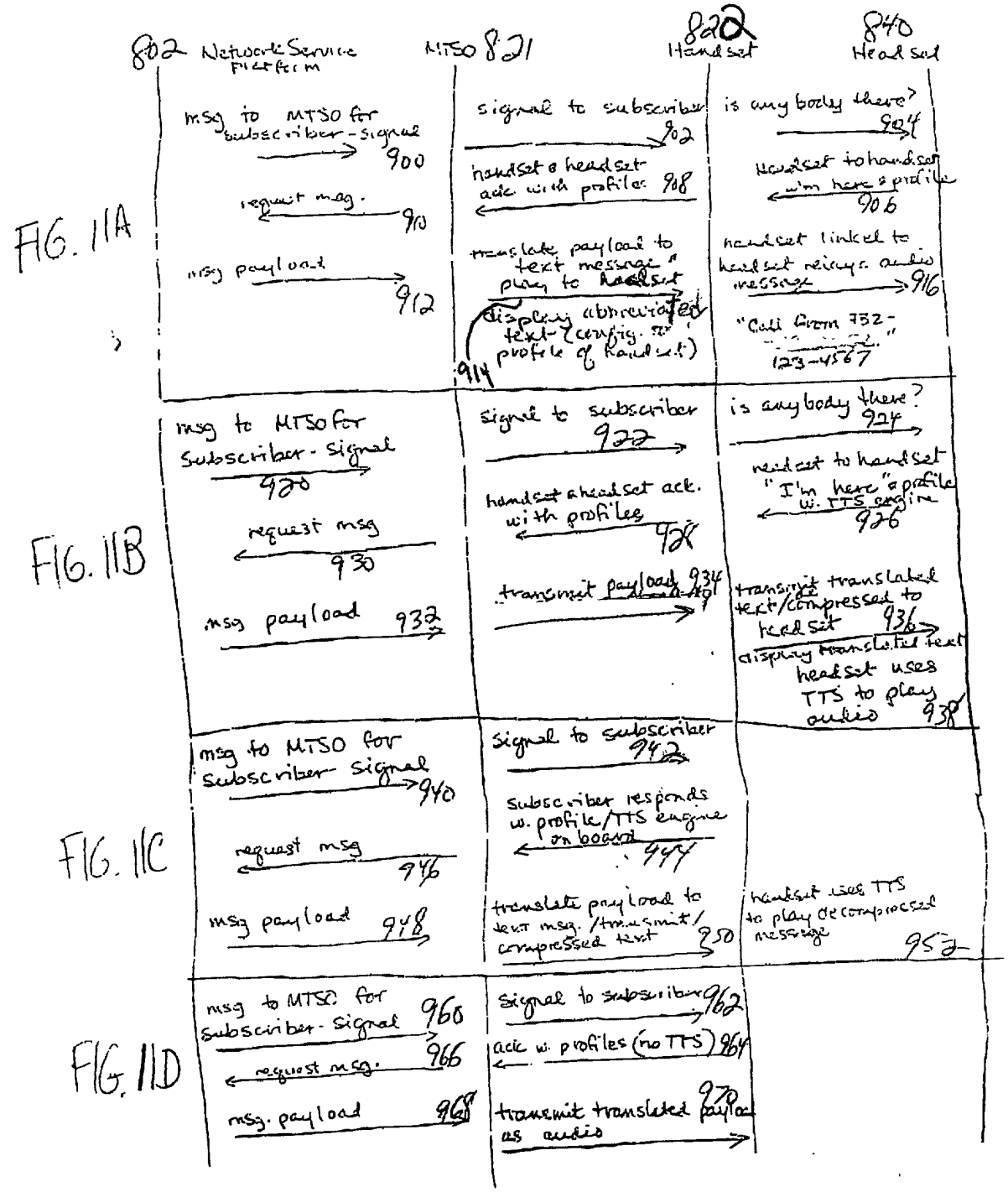


FIG. 10B ↓


802 Network Service Platform
MTSO 821
820 Handset
840 Head set
msg to MTSO for subscriber - signal 900
request msg. 910
msg payload 912
signal to subscriber 902
handset & headset ack with profiles 908
translate payload to text message & play to headset
displaying abbreviated text (config. to profile of handset) 914
is anybody there? 904
Headset to handset w/ I'm here's profile 906
handset linked to headset relays audio message 916
"Call from 732-123-4567"
FIG. 11A
msg to MTSO for subscriber - signal 920
request msg 930
msg payload 932
signal to subscriber 922
handset & headset ack. with profiles 928
transmit payload 934
is anybody there? 924
headset to handset "I'm here" & profile w. TTS engine 926
transmit translated text/compressed to headset 936
display translated text headset uses TTS to play audio 938
FIG. 11B
msg to MTSO for subscriber signal 940
request msg 946
msg payload 948
signal to subscriber 942
subscriber responds w. profile/TTS engine on board 944
translate payload to text msg./transmit/compressed text 950
handset uses TTS to play decompressed message 952
FIG. 11C
msg to MTSO for subscriber - signal 960
request msg. 966
msg. payload 968
signal to subscriber 962
ack w. profiles (no TTS) 964
transmit translated payload as audio 970
FIG. 11D

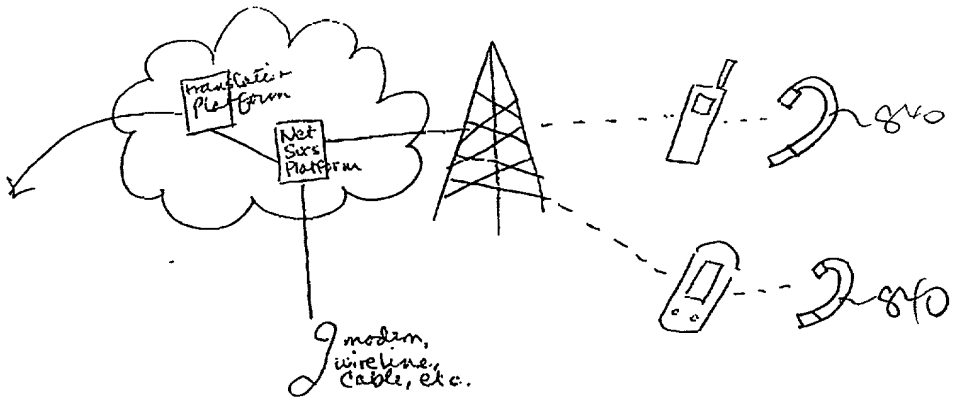

Traffic Platform
Net Svcs Platform
modem, wireline, cable, etc.
840
840

FIG. 12

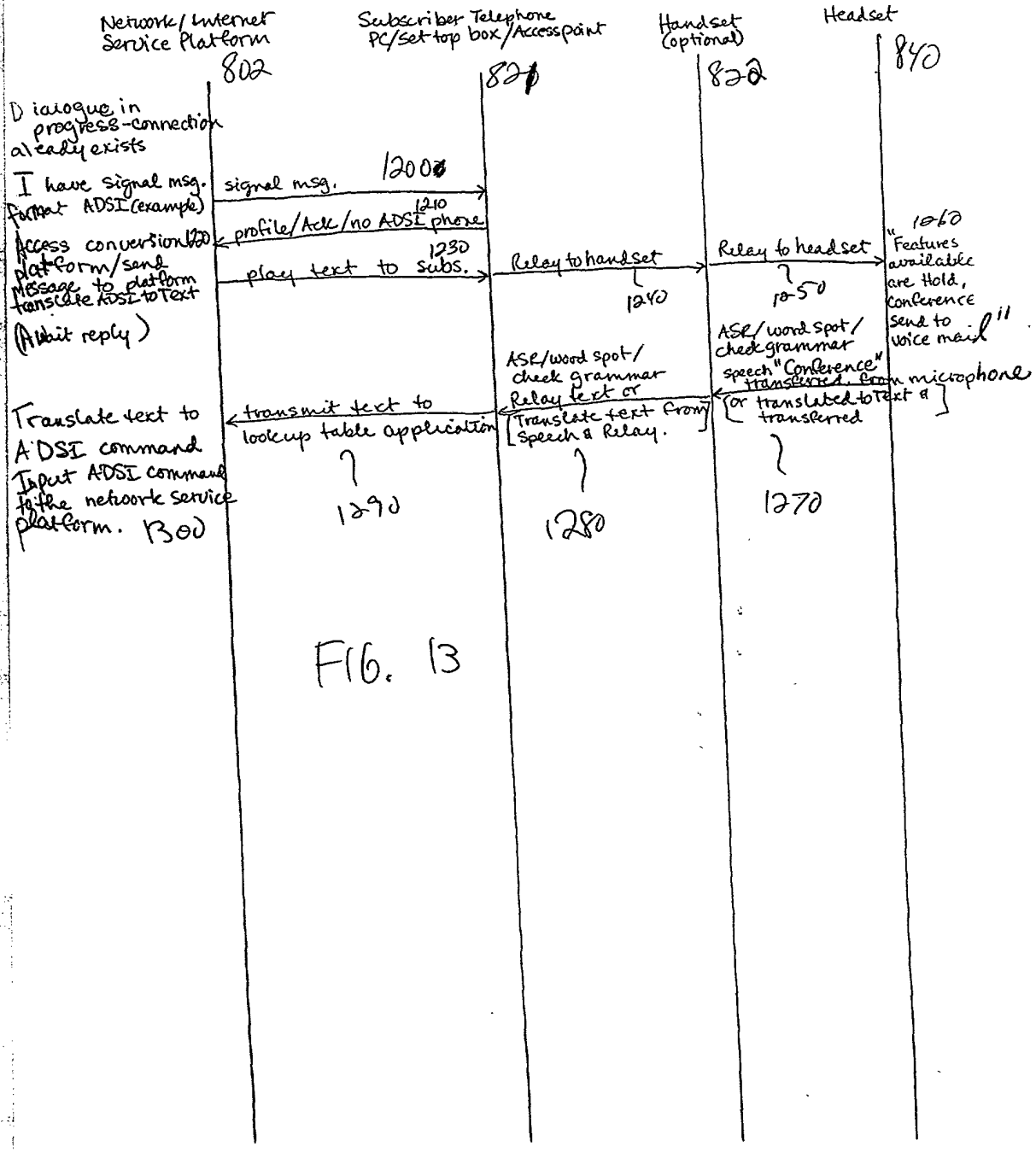
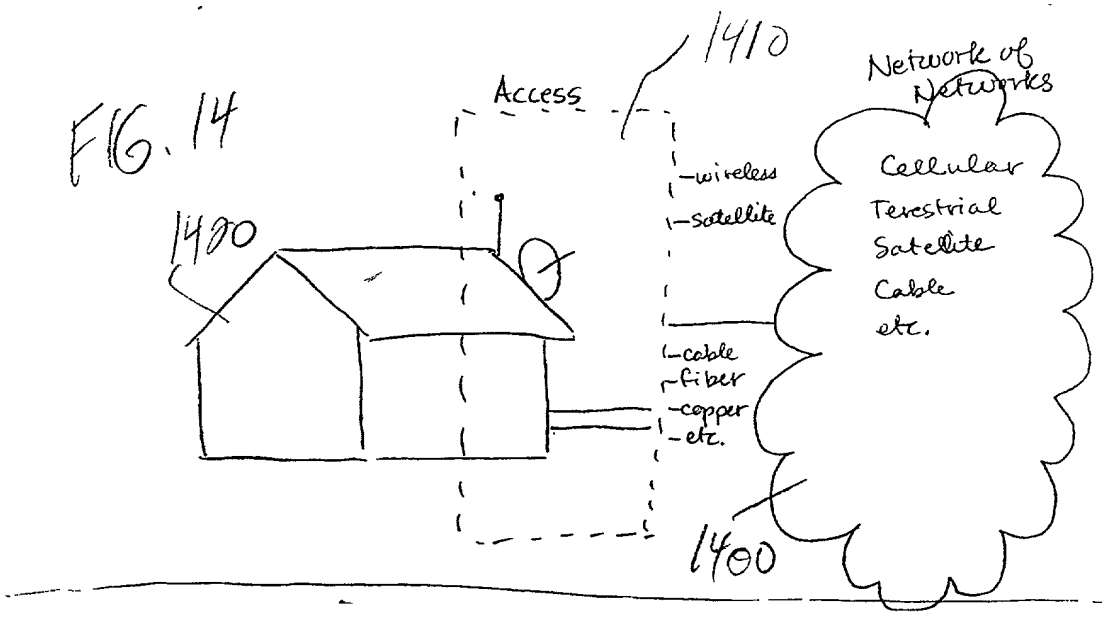

Network/Internet Service Platform
802
Subscriber Telephone PC/set-top box/Accesspoint
820
Handset (optional)
822
Headset
840
Dialogue in progress-connection already exists
I have signal msg. format ADSI (example)
Access conversion platform/send message to platform translate ADSI to Text
(Abit reply)
Translate text to ADSI command
Input ADSI command to the network service platform. 1300
signal msg. 1200
profile/Acc/no ADSI phone 1210
play text to subs. 1230
transmit text to lookup table application
1290
Relay to handset
1240
ASR/word spot/check grammar
Relay text or
Translate text from speech & Relay.
1280
Relay to headset
1250
ASR/word spot/check grammar
speech "Conference" transferred from microphone
(or translated to Text & transferred
1270
"Features available are Hold, Conference send to voice mail" 1260

FIG. 13

Nc

FIG. 14


1410
Access
Network of Networks
Cellular
Terestrial
Satellite
Cable
etc.
-wireless
-satellite
-cable
-fiber
-copper
-etc.
1400
1400